

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of  
Gary Q. JIN

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OCT 29 2005

Serial No. 09/942,628

Group Art Unit: 2667

Filed: August 31, 2001

Examiner: Kamran EMDADI

Title: EFFICIENT IMPLEMENTATION OF LARGE SIZE FFT

Customer No. 33361

Confirmation No. 9081

**RESPONSE AFTER FINAL ACTION - 37 C.F.R. 1.113**

The Honorable Commissioner of  
Patents and Trademarks  
P.O. Box 1450  
Alexandria, VA 22313-1450  
U.S.A.

Sir:

This is a response to the Office Action mailed August 5, 2005 which was made **Final**.

Applicant requests that the finality of the office action mailed August 5, 2005 be rescinded for the reasons set out below.

In the Office Action, the examiner rejected extant claims 2, 3 and 10 to 40 on the grounds that they failed to comply with 35 U.S.C. 112, 1st. paragraph because the phrase "using, for each subband, a respective one of a plurality of different FFTs", which appears in independent claims 17, 20, 25, 30, 31 and 36 constituted new matter. He noted that the exact phrase did not appear in the specification as filed.

The phrase in question was introduced by amendment of the paragraph at page 4, lines 3 to 6 as follows:

— Although in the above scheme, the same bandwidth is assumed for all subbands, variable the bandwidth may vary from one subband to another, with a corresponding variation of with variable FFT size and (up/down) sampling rates can be handled as well. As for the FFT size and filter selection, two different schemes can be used, as described next. --

A person skilled in this art, and knowledgeable about DMT and VDSL, would have realized that the original passage did *not* mean that the FFT size *for a particular subband* was variable, i.e., in real time, but rather that the FFT size could vary (differ) from one subband to another. The amendment made this clearer.

This amendment did not add new subject matter. The specification, as filed, included the following passage on page 2, lines 14 to 22:

It is an objection (*sic*) of the present invention to overcome the aforementioned problem by replacing one large size FFT with *a few small sized FFTs*. In this way, both computation time and chip size are reduced, especially for FDM applications, when only part of the frequency band is used for data transmission.

Therefore in accordance with a fist (*sic*) aspect of the present invention there is provided a system for implementing a Fast Fourier Transform (FFT) in a broad bandwidth, high data rate communications application, the system comprising: means to divide the bandwidth into subbands; and means to implement the FFT separately for each subband. (*Emphasis added*)

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Amtd. dated October 29, 2005  
Reply to Office action of August 5, 2005  
Atty. Docket No. AP1102US

If the bandwidth is divided into subbands, there *must* be a plurality of subbands. The skilled addressee would understand, therefore, that the invention involved replacing a *single* large FFT with a *plurality* of separate (different) FFTs, one for each subband. The phrase "using, for each transformed sub-band signal, a respective one of a plurality of different FFTs corresponding to those in the transmitter" merely expressed this more clearly than the original wording of claim 1.

It is noted that the original wording used the word "separate" whereas the amendment used the word "different". It is submitted that this is irrelevant because, in the context, "separate" and "different" are synonymous, as indicated by the entry for the word "different" in the Merriam-Webster Online Dictionary which, under the caption **synonyms**, includes the statement "DIFFERENT may imply little more than separateness ...."

In view of the foregoing, it is respectfully requested that the Final rejection be withdrawn and the application allowed.

If the examiner has any further concerns, he is invited to call the undersigned at (613) 254 9111 with a view to expediting allowance of the application.

Respectfully submitted,

Date: 29<sup>th</sup> Oct '05



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Docket No. AP1102US

#### CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office, Fax No. (571) 273 8300 on the date shown below.

29<sup>th</sup> October '05  
Date



Thomas Adams